ACQUISITION RESEARCH

Research Project Opportunities

Under

Acquisition Chair Sponsorship

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Project # 1

Topic: Contract Closeout (MBA Team)

Sponsor: ASN (RDA) (ACQ)

Researcher(s): MBA Team (TBD)

Description: This study is a follow-on to the Contract Closeout effort performed by an MBA Team under Project #6, FY03 program. The MBA Professional Report is: Transformation of DOD Contract Closeout, June 2003. DASN (RDA) (ACQ) is particularly interested in pursuing implementation of the recommendations made by this MBA Team. The detailed mapping of the contract closeout process provided by the earlier team will be invaluable in establishing a roadmap. The ASN (RDA) monthly database of Navy contracts registered in the MOCAS system continues to be a key source of information but critical problems regarding its accuracy have surfaced. Key stakeholders (e.g., DCMA, DFAS, DCAA, buying commands, contractors) will be contacted regarding the details of implementation, including actions that can be taken during pre-award and post-award phases to expedite contract closeout, actions that can facilitate batch closeout of large numbers of contracts simultaneously, and actions that can predict the costs to the Navy of maintaining, tracking, managing and closing physically complete contracts. The team will also assess the cost effectiveness of contracting out the process of contract closeout, examine the use of recovery auditors in the contract closeout process, and evaluate the use of existing quick closeout procedures and how they might be re-engineered.

Period of Performance: Jan-Dec 2004

Product(s): MBA Professional Report to DASN (RDA) (ACQ) regarding implementation of recommendations from MBA Professional Report on Contract Closeout Transformation, Jun 2003

Project # 8

Topic: Public/Private Partnerships (PPP)

Sponsor: PEO SHIPS

Researcher(s): TBD

Description: One of the major issues to be decided over the coming decade is that of the "proper role of the Government in the 21st century." The current administration has been pursuing this area aggressively, often in terms of changing the Government from "the doer" to the "manager of the doers;" while in other areas, introducing market forces for commercial-like work that had previously been done sole-source by the Government. This rapid transformation has been taking a wide variety of forms from "outsourcing" through "competitive sourcing" (between the public and private sectors) to "public-private partnerships." The driving force behind all of this is the fact that, through the use of market incentives, people have found that the introduction of competitive forces causes performance to improve very significantly while costs drop dramatically, regardless of which sector is the winner.

Public/Private Partnerships, also referred to as Public/Private ventures, allow the public and private sectors to share the costs, risks, benefits, and profits. PPPs take many forms, between the range of fully public and fully private operations. In Public/Private initiatives, production work, facilities management, and the investment of capital are functions that can be shared between public and private entities to obtain efficiency and cost savings. One of the key elements of a PPP is the allocation of risks between the public and private sectors. When using other strategies, the Government assumes only recipient risks; in PPPs, it has to assume both recipient and sourcing risks. When used appropriately, PPPs can enable the Government to take advantage of privately owned infrastructure, technology, financing, or capabilities

With the continuing budgetary pressures and increased OMB emphasis, organizations are actively reviewing their sourcing options. Well-developed teaching case studies, that capture lessons learned and best practices, are immensely useful as

teaching tools for building the framework of subject knowledge and for developing analytic skills, and would go a long way in helping to address these options.

Of critical importance is the education of the Government workforce. With the case study proposed herein, a set of learning objectives should be established for students as follows:

- Becoming change agents to improve the use of public-private partnerships, through personal and team leadership, creative thinking, effective negotiation and communication, and adapting staff to changing workforce needs;
- Understanding private sector markets and how the public sector interacts with those markets, with emphasis on the opportunities and pitfalls of bringing private sector disciplines and techniques to the operation of the Government;
- Understanding the legal, social and environmental implications of, and the lessons to be learned from, past PPP efforts;
- Knowing how to evaluate candidates for PPP and compare life cycle costs to continued Governmental operations;
- Being able to design public-private partnerships initiatives and solicit excellent private partners through the successful management of a competition and selection process;
- Being able to formulate solicitations and perform source selection on performance-based review programs;
- Having the capacity to manage assets once a private partner has been selected, through the use of project-based budgeting, financial statement interpretation, early warning signals and effective intervention strategies, and portfolio management so that appropriate oversight can be sustained long-term;
- Being able to analyze policy options and contribute constructively to program design, redesign and evaluation.

Period of Performance: 1 Mar-31 Jul 2004

Product(s): Case Study (jointly with University of Maryland-Jack Gansler)

Project # 19

Topic: Crossed-Field Amplifier Case

Sponsor: PEO IWS

Researcher(s): MBA Team

Description: The AEGIS system provides an example of a very successful Total Ownership Cost (TOC) reduction effort. Each ship requires microwave-producing equipment that includes a device called a Cross-Field Amplifier (CFA). Early in the AEGIS deployment, the CFA proved to be a cost driver with relatively expensive failures attributable to an arcing condition between the cathode and anode in the microwave tube. This arcing caused the CFA to fail at about 6,000 hours Mean Time Between Failure (MTBF). A change to anode metallurgy, along with other minor changes, reduced arcing and increased MTBF to between 40,000 and 45,000 hours, which drastically reduced the frequency of corrective maintenance, maintenance man-hours, and stockage level requirements, while simultaneously improving the reliability and availability of the microwave system. This dramatic improvement was the result of a team effort among the AEGIS Program Office, Communications and Power Industries (CPI, the vendor that provided the CFA, was formerly part of Varian), Crane Naval Surface Warfare Center (the Navy In-Service Engineering Agent for AEGIS microwave tubes), the Navy MANTECH Office, and Raytheon (the prime contractor, located in Sudbury, MA). This TOC reduction affects twenty-seven AEGIS Cruisers, each of which has 76 CFAs and forty AEGIS Destroyers, equipped with 38 CFAs. In 2002 dollars, the annual cost avoidance averages about $1.9 million per Aegis Cruiser and $950,000 per AEGIS Destroyer. Eventually, TOC reduction will benefit an additional 22 AEGIS Destroyers that are yet to be completed and deployed, each of which will have 32 CFAs.

The lessons learned from this example of TOC reduction should be captured in a case study for education and training purposes. Such a case could easily identify the

critical elements of a TOC reduction program and demonstrate how these elements occurred in the CFA situation.

Period of Performance: 1 Jan-31 Dec 2004

Product(s): MBA Professional Report; Acqn Case Series case.

PEO (IWS) — NPS RESEARCH TOPICS

- Shifting the Paradigm from Proprietary to Open Solutions for Weapon Systems
- Incentivizing Contractor Performance in Developing OA Solutions
- Learning from LINUX – Open Architecture in the Navy
- Risks and Benefits Associated with Adopting Open Standards
- The Role of Small Business in OA
- Optimizing Phalanx Weapon System Life Cycle Support
- Cost effective comparison of non-guided gun projectiles to guided projectiles. – This analysis would evaluate cost per kill for various targets comparing non guided projectiles and guided projectiles.
- An evaluation of procurement and competition opportunities for gun launched guided projectiles at various production rates.
- Inherent savings in inventory hold cost and ship lift requirements for gun launched guided projectiles vs. conventional (Fewer will be guided projectiles but will be required to perform equivalent missions.)

NAVSEA NAVAL SURFACE WARFARE CENTER – NPS RESEARCH TOPICS

In today's acquisition environment there exists a "tension" between the Acquisition community (Program Executive Offices and Industrial Base) and the Navy's engineering infrastructure (Warfare Centers) operating as a Working Capital Fund organization. The acquisition community is being driven by cost, schedule, and performance. Sustainment of a strong industrial base is critical to the long-term success of our National Defense. The Navy engineering infrastructure, with assets valued at billions of dollars, is not fully utilized. The Warfare Centers mission is to ensure delivery of reliable systems and platforms and to mitigate/minimize risk to the Fleet. How do you encourage the use of both of these resources without tempering the acquisition process? How can the Navy acquisition community optimally use its government infrastructure?

Topic #1

Propose the development of a business model/process that encourages the acquisition community and the Navy engineering infrastructure to find the "best value" of resources available within the public and private sector to reduce overall lifecycle costs to the Department of Defense. This topic also related to the CLS/FSC/PBL business models mentioned in the SEA 04L Topic. Warfare Centers are given unique "authorities" associated with accomplishing work for private parties (industry); creating public-private arrangements around the CITE (Center for Industrial and Technical Excellence) authority granted by Congress and OSD: and recent Technical Authority responsibilities granted by COMNAVSEA and the emergence of the Product Area Leadership (PAL) concept associated with Warfare Center alignment.

Topic #2

The Warfare Centers have seen a gradual increase in their Work for Private Parties (WFPP) over the last decade. From a several thousand dollars to multimillion dollar tasks today, the Warfare Centers are slowly seeing more of their workload come from the private industrial sector. Work is accepted through a variety of Title 10 statutes but primarily is accepted via Sect. 2563, 2359b, and 7303.

Propose the development of an improved acquisition policy and funding strategies that will maximize the value of funding (no pass-through expense) and enhance the public-private partnership.

NAVSEA Acquisition Support Office (SEA 105) – NPS Research Topics

- Technology Push or Pull – Select a series of technological innovations that have influenced the character of warfare – such as, stealth, precision guided munitions, reactive armor, heads-up displays. Identify the proportion of them that arose because of a pre-stated need for such technology by users (i.e., directed research), and what proportion of them came out of open-ended basic research. How did these technologies enter the defense inventory? How would the results of this study impact the way that the defense research establishment and the defense acquisition establishment better integrate with each other?
- Foreign Suppliers – Identify what has been the result of previous legislation regarding foreign suppliers involvement in US defense contracting and subcontracting? Show positive and detrimental impacts and project similar impacts from ongoing legislative policies.

NAVSEA Cost Engineering Office (SEA 017) – NPS Research Topic

Cost Modeling of Non-Traditional Ship Designs

The Navy is pursuing transformational ship design technologies to meet new threats with lowest cost. Analogies with traditional Navy ships for costing may be inappropriate, given diverse missions and new design requirements for speed, agility and hull construction and configuration. There is limited historical data from which to

derive some parametric cost estimating relationship that will be needed to evaluate alternative ship designs.

There are two features the Navy may employ which merit some additional in-depth analysis that will aid in the cost estimating process.

- Mission Package Modularity. Given the operational flexibility and low investment cost in mission package modularity, what is the cost required to design a ship and its mission modules to be consistently producible and compatible? Are there any parallels in completed or mature U.S. commercial shipbuilding or in related projects that help to define and characterize the elements of cost?
- Non-Traditional Hull Forms. Given a general set of hull forms and materials not before employed for U.S. surface combatants, what relevant historical pricing data for Navy non-combatants and U.S. Commercial shipbuilding are available? What parametric relationships can be derived, adapted and/or extrapolated to assist in developing weight-based or other Cost Estimating Relationships?

To explore these cost questions, NAVSEA envisions opportunities for the Naval Postgraduate School (NPS) to perform as a partner in this effort with Program Executive Officer for Ship Programs and the NAVSEA Cost Engineering Division (SEA 017)

PEO CARRIERS, NPS TOPIC

PEO Aircraft Carriers has been engaged with one ONR Commercial Technology Transition Office (CTTO) in investigating the employment and leverage of the Venture Capital (VC) community to develop another acquisition tool for delivering cutting edge, state-of-the art technology to the carrier community. There are four prospective VC technology deals currently in the planning process for eventual execution and evaluation through a series of shipboard demonstrations on in-service carriers. The deals cover technologies for small lightweight personal communications devices, self-repairing wireless mesh networks for HM&E sensors, non-volatile flexible data/information displays, and virtual keyboard/precision vision technology. For all of these VC projects PEO Carriers envisions opportunities for the Naval Postgraduate

School (NPS) to perform as a partner in this effort with the PEO. There are a number of areas where NPS support can be applied to these projects:

- Integration of components acquired by the PEO from the VC firms into systems, subsystems that can be evaluated in the laboratory and then inserted onboard an in-service ship for an "at sea demonstration/evaluation."
- Assistance in development of the "at sea" demonstration evaluation metrics for the technologies
- Assistance in coordinating and working with ship's personnel to collect evaluation/demonstration performance metrology, and crew feedback.
- Providing the PEO with a report for each technology covering current method of performing the function the new technology provides, capability change upon introduction of the new technology, ship's personnel adaptation to the new technology, changes in shipboard work practice resulting from new technology, other applications of the new technology in addition to the one used for the evaluation, estimating of potential man-hours savings new technology produced/could produce if applied to cited applications, any other issues and or impacts of significance with respect to the new technologies.
- Assisting the PEO in vetting thee technology through the CTTO "Due Diligence" process to fully analyze and evaluate the applicability of the selected technologies and the viability of the firms marketing the technologies.

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Sponsored Research Project
Statement of Interest

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Current Program: _____

Research Interests: _____

Project Interests: _____

Academic Advisor: _____

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